

JVC

SERVICE MANUAL

MODEL

KD-D20 A/B/C/E/J/U

STEREO CASSETTE DECK



No. 4208
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Specifications

Type	: Stereo cassette deck
Track system	: 4-track, 2-channel
Tape speed	: 1-7/8 inch/sec (4.8 cm/sec)
Frequency response	: (0 dB recording)
	Metal tape *1;
	40—11,000 Hz (± 3 dB)
	SA/Chrome tape *2;
	40—8,000 Hz (± 3 dB)
	SF/Normal tape *3;
	40—8,000 Hz (± 3 dB)
	(—20 dB recording)
	Metal tape *1;
	30—16,000 Hz
	40—15,000 Hz (± 3 dB)
	SA/Chrome tape *2;
	30—16,000 Hz
	40—15,000 Hz (± 3 dB)
	SF/Normal tape *3;
	30—15,000 Hz
	40—14,000 Hz (± 3 dB)

Note: *1JVC ME or Equivalent

*2TDK SA or Equivalent

*3MAXELL UD or Equivalent

S/N ratio	: 58 dB (S=1 kHz, K3=3%, N=A-weighted, Metal tape) The S/N is improved by 5 dB at 1 kHz and by 10 dB above 5 kHz with ANRS/DOLBY B NR on.
Wow and flutter	: 0.05% (WRMS), 0.16% (DIN 45 500)
Crosstalk	: 60 dB (1 kHz)
Harmonic distortion	: K3; 0.5% THD; 1.0% (metal tape, 1 kHz 0 VU)
Heads	: METAPERM head for recor- ding/playback, 2-gap ferrite head for erasure
Motor	: Electronic governed DC motor
Fast forward time	: 100 sec. with C-60 cassette
Rewind time	: 100 sec. with C-60 cassette
Input terminals	
Mic jack $\times 2$: Max. sensitivity; 0.2 mV (—74 dBV) Matching impedance; 600 Ω —10 k Ω
Input jack $\times 2$: Min. input level; 80 mV Input impedance; 100 k Ω

Output terminals	
Output jack $\times 2$: Output level; 300 mV Output impedance; 5 k Ω
Phones jack $\times 1$: Output level; 0.3 mW/8 Ω Matching impedance; 8—1 k Ω
Power requirement	: AC 240 V 50 Hz (KD-D20A) AC 120 V 60 Hz (KD-D20C/J) AC 240/220/120 V 50/60 Hz (KD-D20B/E) AC 240/220/120/100 V 50/60 Hz (KD-D20U)
Power consumption	: 13 W (With power on) 1.3 W (With power switch off)
Dimensions	: 17-1/8" (435 mm) W 4-9/16" (116 mm) H 10-13/16" (275 mm) D
Weight	: 10.8 lbs (4.9 kg)
Accessories	: Pin plug cord 2

Design and specifications are subject to change without notice.

Features

- One-motor logic tape transport mechanism.
- ANRS/Dolby* B NR greatly reduce tape hiss noise.
- Metal tape compatible.
- 2-color LED peak level indicator.
- TIMER START facility.
- Full auto-stop mechanism.
- Geared and oil-damped cassette door.
- Automatic input select.

*"Dolby" and the double-D symbol are trademark of Dolby Laboratories Licensing Corporation.

Controls and Connections

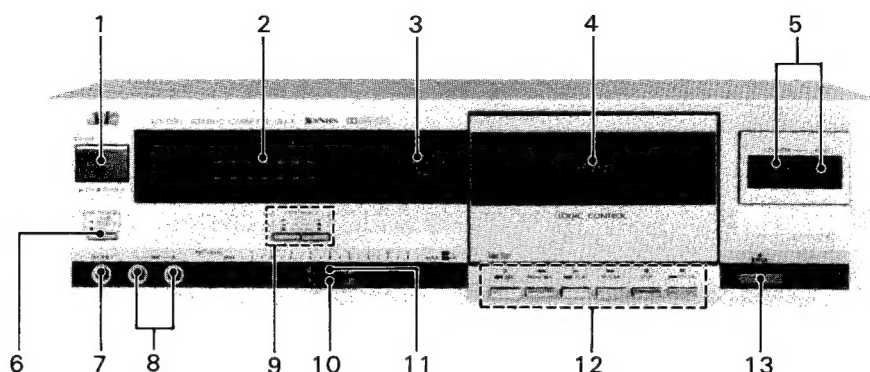


Fig. 1

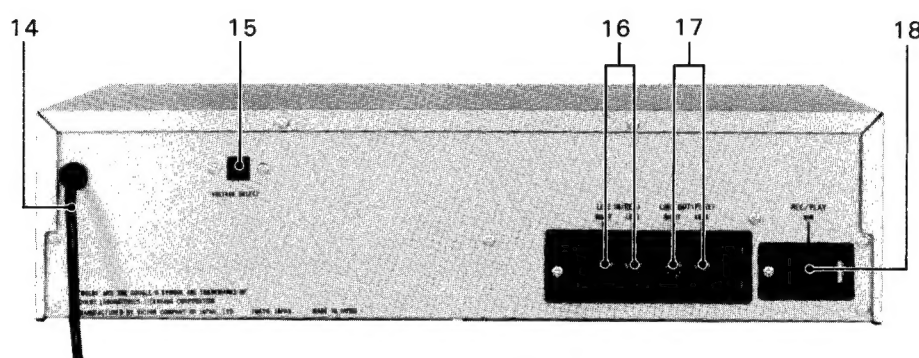


Fig. 2

- | | |
|--|-------------------------------------|
| 1. POWER switch | 12. Cassette operation buttons |
| 2. MULTI PEAK INDICATOR | ○ REC (Record) button |
| 3. POWER indicator | ◀◀ REW/REV (Rewind/Review) button |
| 4. Cassette holder | ▶▶ PLAY button |
| 5. Tape COUNTER/counter RESET button | ▶▶ FF/CUE (Fast forward/cue) button |
| 6. NR SYSTEM switch | ■ STOP button |
| 7. Headphone jack [PHONES] | ⏸ PAUSE button |
| 8. Microphone jacks [MIC-L, MIC-R] | 13. EJECT button |
| 9. TAPE SELECT switches | 14. Power cord |
| [METAL, SA/CrO ₂ & SF/NORM] | 15. Voltage select switch |
| 10. REC LEVEL control (right) | 16. LINE IN (REC) terminals |
| 11. REC LEVEL control (left) | 17. LINE OUT (PLAY) terminals |
| | 18. REC/PLAY (DIN) socket |

Main Parts Location

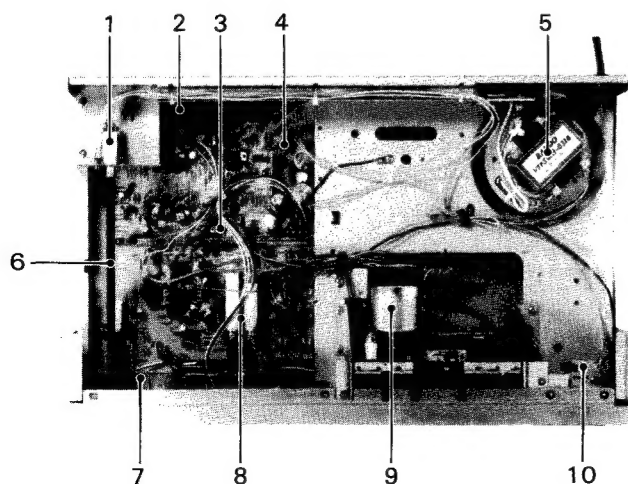


Fig. 3

1. Power switch
2. Pin jack ass'y
3. Recording switch
4. Main P.W. board ass'y
5. Power transformer
6. Remote bar for power switch
7. Microphone jacks
8. Tape select switches
9. Motor
10. Hall IC. P.W. board

Removal of Main Parts

Observe care in handling the parts since the parts are small in size and the distance between them are short due to a deck design aimed mainly at compactness and high performance.

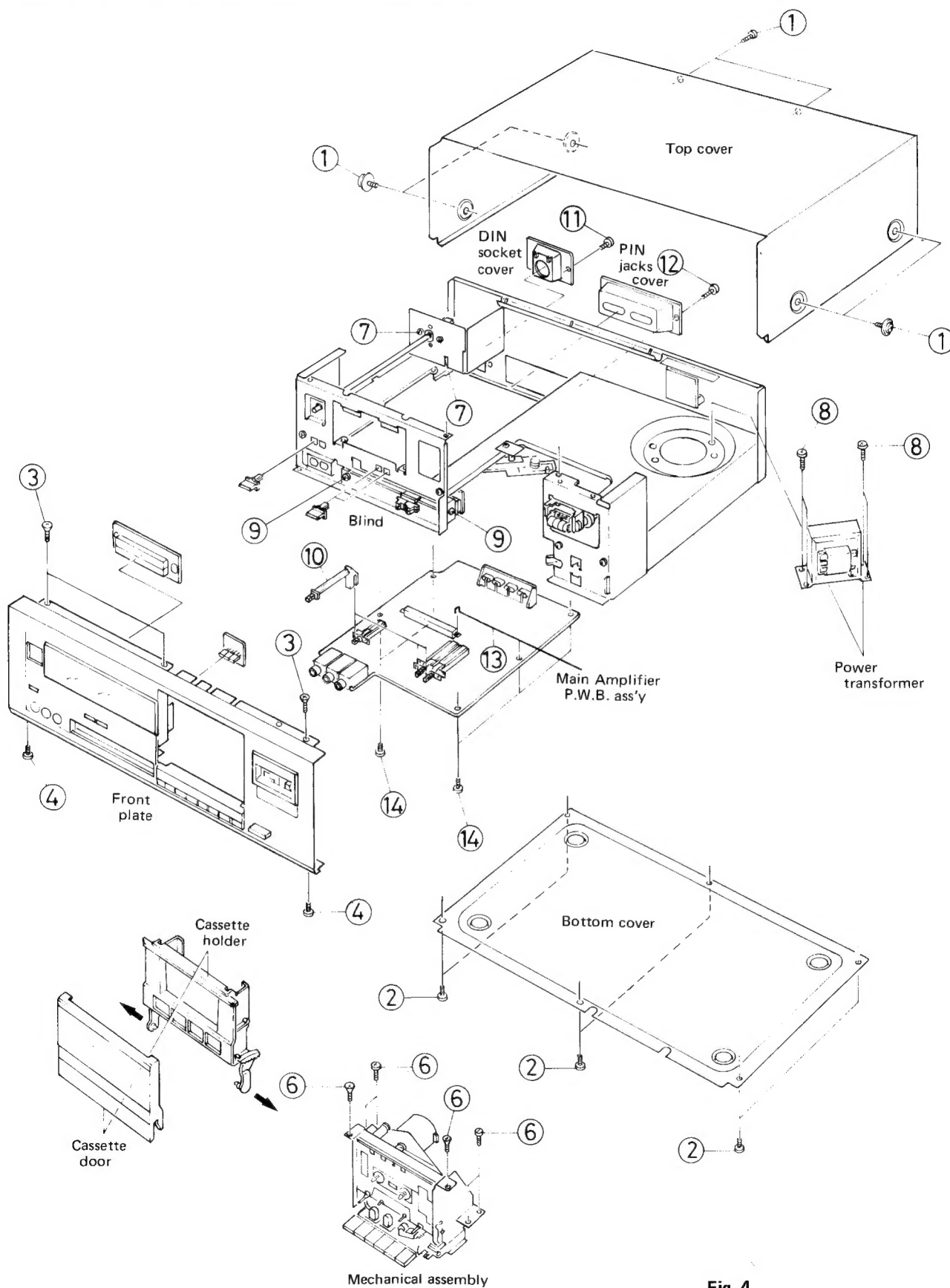


Fig. 4

Enclosure assembly parts

1. Cassette door
Push the EJECT button to open the cassette door. Slide off the cassette door upwards to unlock its pawls off both sides.
2. Top cover
Remove 6 screws (1). (left, right and rear 2 screws on each.)
3. Bottom cover
Remove 6 screws (2).
4. Front plate assembly
Remove 5 screws (3 screws (3) on upper side and 2 screws (4) on bottom side).
5. Cassette holder
 - 1) Remove the cassette holder from the gear of right side.
 - 2) Pull off the C. holder boss to arrow mark direction.

Mechanical assembly

Remove 6 screws (6) fastening the mechanical ass'y (2 screws on the front bracket, and 4 screws on the chassis.)

Electrical parts

When removing wire clamp (QHX2075-001), cut off it and when clamping wires, use new parts.

1. Power switch
Remove 2 screws (7) fastening the power switch.
2. Power transformer
Remove (4) screws (8) fastening the power transformer.
3. Slide knobs (Recording level control)
Remove 2 screws (9) fastening the blind.
4. Main amplifier P.W. board ass'y
 - 1) Pull off 3 knob holders (10) of tape select switches and NR system switch.
 - 2) Remove a screw (11) fastening DIN socket cover.
 - 3) Remove a screw (12) fastening PIN jacks cover.
 - 4) Remove the recording switch wire (13).
 - 5) Remove 5 screws (14) fastening the main amplifier P.W. board.
 - 6) Slide down the rear side of main amp. P.W. board and pull off it to rear side.

Safety Precautions

△ Safety mark

Safety is very important with this unit. When replacing the parts marked △, be sure to use only those designated parts. The designated resistors, diodes, transistors become hot in use. When replacing, be sure to secure them with a distance of more than 5 mm from the circuit board. In addition, they are banded together to avoid touching other wiring, recheck this point as well after repair.

The wiring of the primary side should be wound more than one and half times, then soldered.

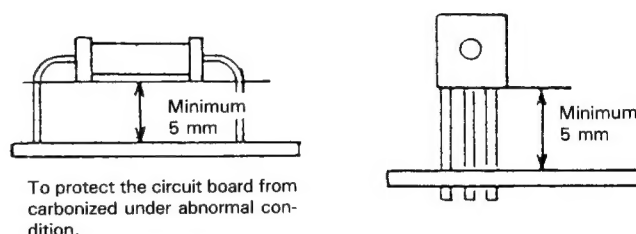


Fig. 5

Removal of the Mechanical Parts

Refer to mechanical component parts on page 16.

Remove in the following sequence

1. Pinch roller ass'y (1) (Fig. 6)
Remove an E ring (2) with a pinch roller spring (3).
2. Supply reel disk and take up reel disk (Fig. 6)
 - (1) Remove 2 reel stopper (4) (5).
 - (2) When removing the take up reel, remove the counter belt (6).
(When reassembly the reel disk, the stopper use a new parts — it cannot use again —)
3. Tape counter (Fig. 6)
Remove the counter belt and remove the tape counter pressure position by minus driver etc.
4. Buttons case unit (7) (Fig. 6)
Remove 2 screws (8).

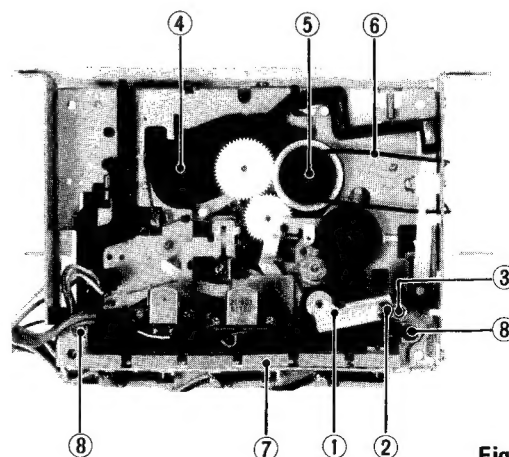


Fig. 6

5. REC/PB head (Fig. 7)

Remove the buttons case and 2 screws (9), and then unsolder REC/PB head P.W. board.

6. Erase head (Fig. 7)

Remove 2 screws (12) and unsolder E head P.W. board.

7. Motor (Fig. 8)

To remove the FM bracket (10), remove 4 screws (11). Remove the capstan belt, remove 3 screws fixing the motor.

8. Flywheel ass'y (Fig. 8, 9)

Remove the FL bracket and the capstan belt. Remove 3 washers (15) (16) (17). (Be careful not to stain the belt)

9. Main base ass'y (18) and disk base unit (19) (Fig. 9, 10)

Remove a screw (20) fixing the pack spring (21)

Remove 2 screws (22).

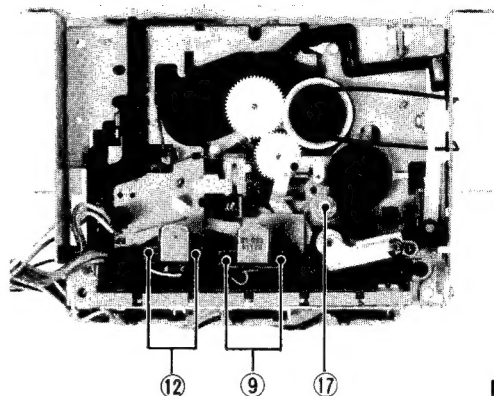


Fig. 7

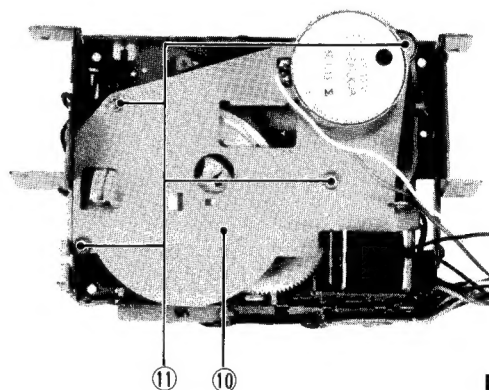


Fig. 8

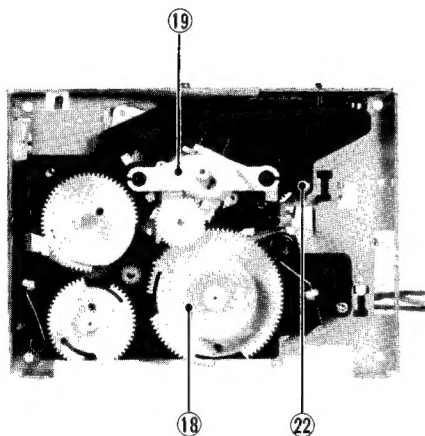


Fig. 10

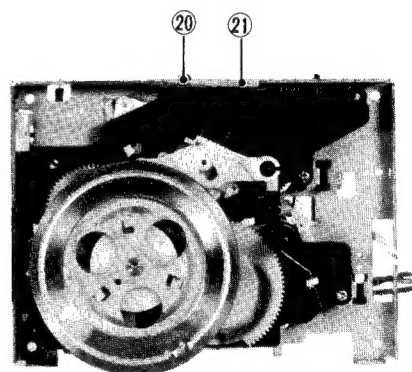


Fig. 9

Main Adjustments

[I] Equipment and measuring instruments used for adjustment

1. Electrical adjustment

- 1) Electronic voltmeter
- 2) Audio frequency oscillator (range: 50—20 kHz and output 0 dB with impedance 600 Ω)
- 3) Attenuator
- 4) Standard tapes for REC/PB

Maxell UD — SF tape	} or equivalent
TDK SA — SA tape	
JVC ME — Metal tape	
- 5) Reference tapes for playback (JVC Test Tape)

VTT-658 (for head azimuth adj.)

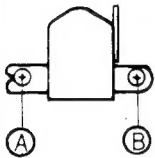
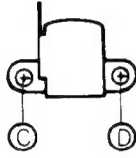
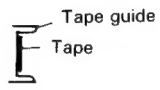
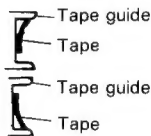
- VTT-656 (for motor speed, wow flutter adj.)
 VTT-664 (for Reference Level 1 kHz)
 VTT-675N (for playback frequency response)
- 6) Resistor 600 Ω (for attenuator matching)

2. Mechanical adjustment

- 1) Torque testing cassette gauge, CTG-N.
- 2) Blank tape (C-120) for tape running checker.

[III] Mechanical adjustment

(Adjust the mechanism or confirm that it is in normal operating condition prior to the adjustment of the electrical circuit.)

Item	Adjustment	Adjusting point	Standard value	Remarks
Adjusting record/play-back head position 	<ol style="list-style-type: none"> 1. Connect an electronic voltmeter to the LINE OUT terminals. 2. Play back the VTT-658 test tape. 3. Adjust the head angle with the screw (A) until the reading of the electronic voltmeter becomes maximum for both channels. 4. After adjusting, set the screw with screw bond. 	Screw (A)	Maximum	If the head is worn, disconnected or exceedingly magnetized so as not to provide the necessary characteristics, replace it with a new one. After replacement, the head position adjustment as well as the playback level adjustment, the bias current adjustment and the recording level adjustment are all necessary. If the output difference between the left and right channels exceeds 3–4 dB, the head is defective. Replace it with a new one.
Adjustment erase head height 	<ol style="list-style-type: none"> 1. Turn the adjusting screw for aligning the erase head until it stops. Then, turn the screw in the reverse direction by 180° (a 1/2 revolution). 2. Employ a special cassette (C-120) from which parts of the casing, where the erase head, record/playback head and capstan engage, has been cut away. Perform tape transport with the cassette tape. Adjust the screw (C) until the tape runs in the center of the erase head tape guide. 	Screw (C)		Be sure to perform this adjustment after replacing the erase head. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Correct</p>  </div> <div style="text-align: center;"> <p>Incorrect</p>  </div> </div>
Adjusting motor speed	Connect a speed meter (an electronic counter) to the LINE OUT terminals. Play back the VTT-656 test tape. Adjust the semi-fixed resistor in the motor until the reading of the speed meter is 3000 Hz.	Semi-fixed resistor in the motor	3000 Hz	If the speed meter functions as a wow and flutter meter, also, connect the deck to the INPUT terminals of the meter.
Checking play-back torque	Employ a torque testing cassette tape for the checking, or remove the cassette cover and use a torque gauge.		40–70 gr-cm	If the standard torque is not obtained, replace the take-up disc assembly.
Checking fast forward torque	Measure the torque in the fast forward mode in the same manner as in the above.		More than 80 gr-cm	If the standard torque is not obtained, perform the following. <ol style="list-style-type: none"> 1. Clean the capstan belt, the idler circumference, the motor pulley, the take-up reel disc circumference, the flywheel circumference, etc. 2. Replace the belt and idler.
Checking rewind torque	Measure the torque in the rewind mode in the same manner as in the above.		More than 80 gr-cm	If the standard torque is not obtained, clean the capstan belt, idler, motor pulley, flywheel circumference, rewinding idler circumference, left reel disc circumference, etc.
Checking wow and flutter	Connect a wow and flutter meter to LINE OUT terminals. Play back the VTT-656 test tape. Check to see if the reading of the meter is within 0.15% (CCIR WTD).			If the reading becomes moving value even if conforming to the standard, a re-claim may be raised. Repairs are necessary.

[III] Electrical adjustments location

Main Amp. P.W. Board (parts ass'y side view)

(Tuning in the direction of the arrow increases the level.)

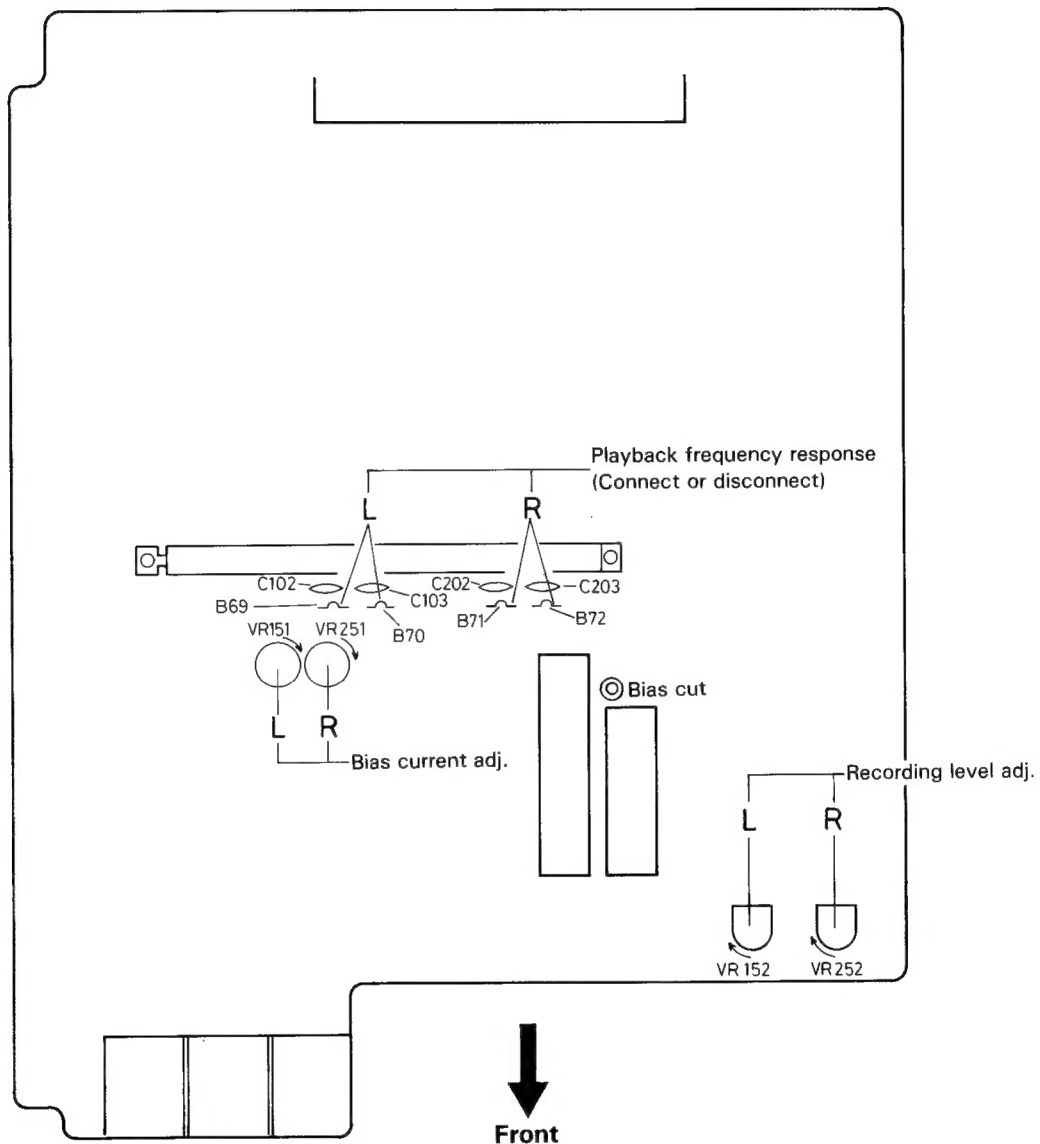


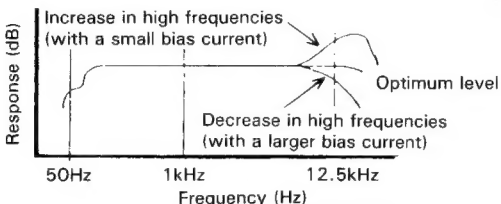
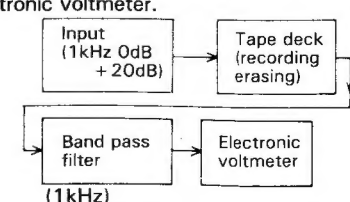
Fig. 11

[IV] Electrical circuit adjustment procedure

In the steps marked by an asterisk (*), adjustment should be performed, however, only checking is sufficient with steps other than those.

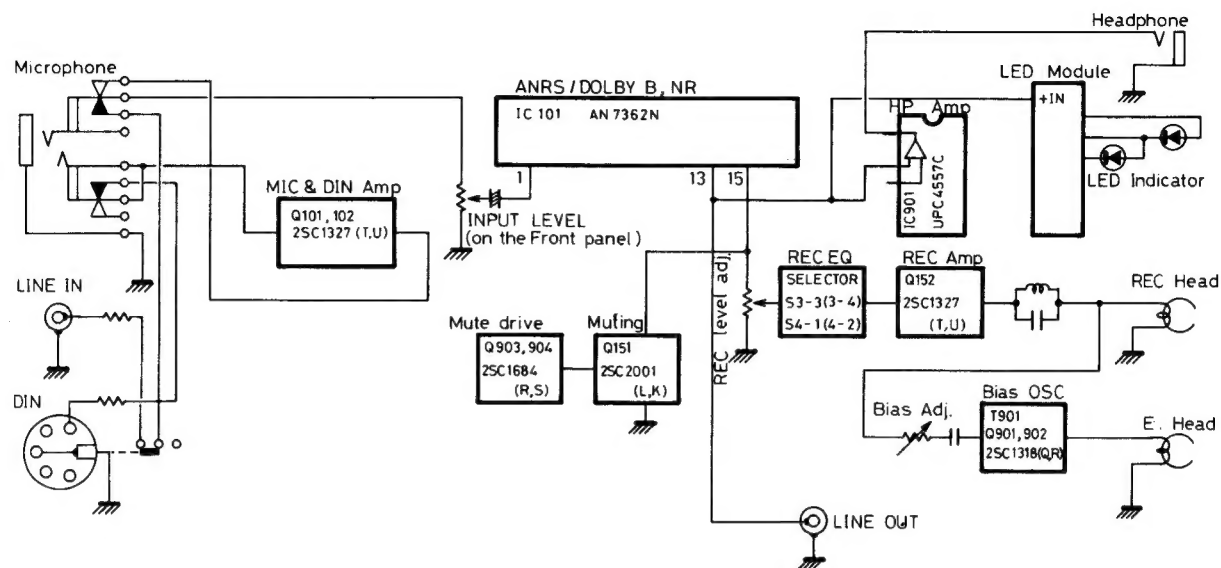
Adjustment should be performed in the order of steps 1, 2, 3,..... Perform this adjustment with the NR SYSTEM switch set to OFF.

Step	Item	Adjustment	Adjusting point	Standard value	Remarks
1 *	Playback frequency response	Play back test tape VTT-675N (1 kHz, 10 kHz) for following adjustment. 1. Connect/Disconnect C102 or C103 so that 10 kHz signal and 1 kHz signal gains become flat response.	C102,202 C103,203	Reference frequency: 1 kHz 0 ± 2 dB at 10 kHz	NR SYSTEM: OFF TAPE SELECT: SF/NORM

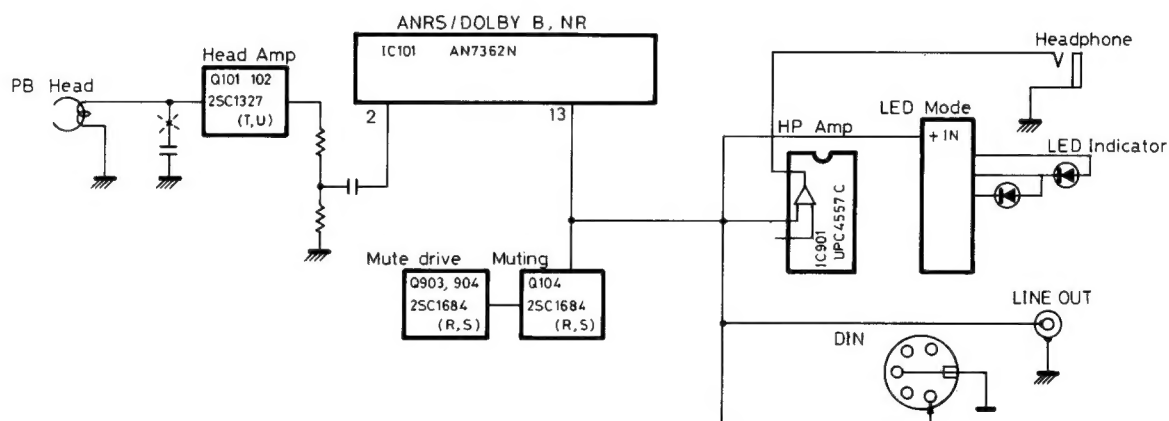
Step	Item	Adjustment	Adjusting point	Standard value	Remarks
2	Checking record/playback frequency response	<p>Record 1 kHz, 50 Hz and 12.5 kHz signals at an input level of 0 dB to -20 dB. Play back the tape. Check to see that the 50 Hz and 12.5 kHz signal output deviations fall within the standard range, using the 1 kHz signal output as a reference.</p> 	For S/F NORM tape; VR151 251	<p>Reference frequency; 1 kHz</p> <p>0 ± 3 dB at 50 Hz</p> <p>0 ± 3 dB at 12.5 kHz</p>	<p>This checking should be performed for normal tape and for both right and left channels.</p> <ol style="list-style-type: none"> 1. Bias current adjustment for a cassette deck should generally be performed referring to the record/playback frequency response. This is because the frequency response of a cassette deck depends more greatly upon the bias current than does that of an open reel deck. 2. If the bias current is not properly adjusted, the record and playback characteristics become as shown left.
3	Adjusting recording level	<ol style="list-style-type: none"> 1. Apply a 1 kHz, approx. -10 dB signal to the LINE IN terminals. Adjust the recording level controls until the signal is available at -8 dBs at the LINE OUT terminals. 2. After checking to see if the Peak level indicator become 0, record the signal applied to both left and right channels using normal tape. 3. Play back the recording part. Perform the recording signal adjustment with VR152 and VR252 so that the peak level indicator becomes 0. 	VR152 252	0 dB	The level difference between left and right channels for SF/NORM tape and chrome tape should be less than 1 dB. Perform the adjustment using a normal tape, level difference between recording and playback for SA/CrO ₂ and metal tapes, should be less than 1.5 dB, and that between left and right channels should also be less than 1 dB.
4	Checking record/playback distortion	<ol style="list-style-type: none"> 1. Record a 1 kHz, -8 dBs signal to LINE IN terminals and perform recording with the peak level indicator become 0. 2. Play back the recorded part. Check the output with a distortion meter to see if the value conforms to the standard value. 		<p>SF/NORM tape; Less than 2.5%</p> <p>SA/CrO₂ tape; Less than 3%</p> <p>Metal tape; Less than 2%</p>	Be sure to perform this adjustment following bias current and recording level adjustment.
5	Checking signal to noise ratio in recording/playback	<ol style="list-style-type: none"> 1. Record a 1 kHz, 0 dB signal. Stop the input by disconnecting from the terminal to perform nonsignal recording. 2. Play back the recorded part. Measure the 0 dB recording output and the non-signal recording output for comparison using an electronic voltmeter. Check to see if the value conforms to the standard value. 		SF/NORM, SA/CrO ₂ and Metal tapes; More than 42 dB	Apply an output (-72 dBs) to the MIC terminals with the recording level controls set to maximum so that the peak level indicator become 0.
6	Checking erasing coefficient	<ol style="list-style-type: none"> 1. Apply a 1 kHz signal to the LINE IN terminals. Adjust the recording level controls until the peak level indicator become 0. 2. Perform recording with the signal enhanced by 20 dB. 3. Erase a part of the recording. 4. Measure the output difference between the erased part and nonerased part to compare with an electronic voltmeter. 		More than 65 dB	<p>For the measuring, connect a band pass filter between the deck and the electronic voltmeter.</p> 
7	Check Auto stop	Hold less than 1 ± 0.5 mm gap to the magnet from the hall IC.			

Block Diagram

Recording system



Playback System



Power Supply Circuit

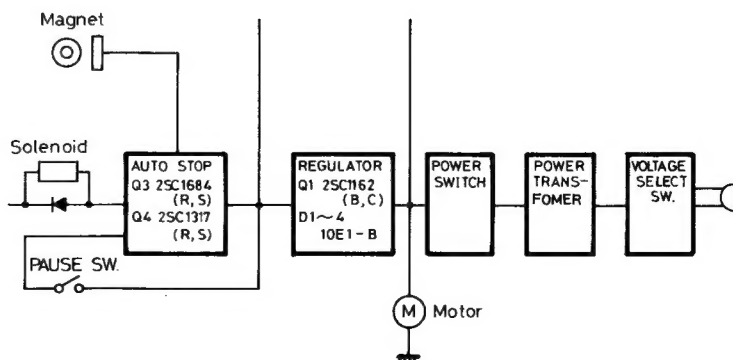


Fig. 12

Wiring Connections

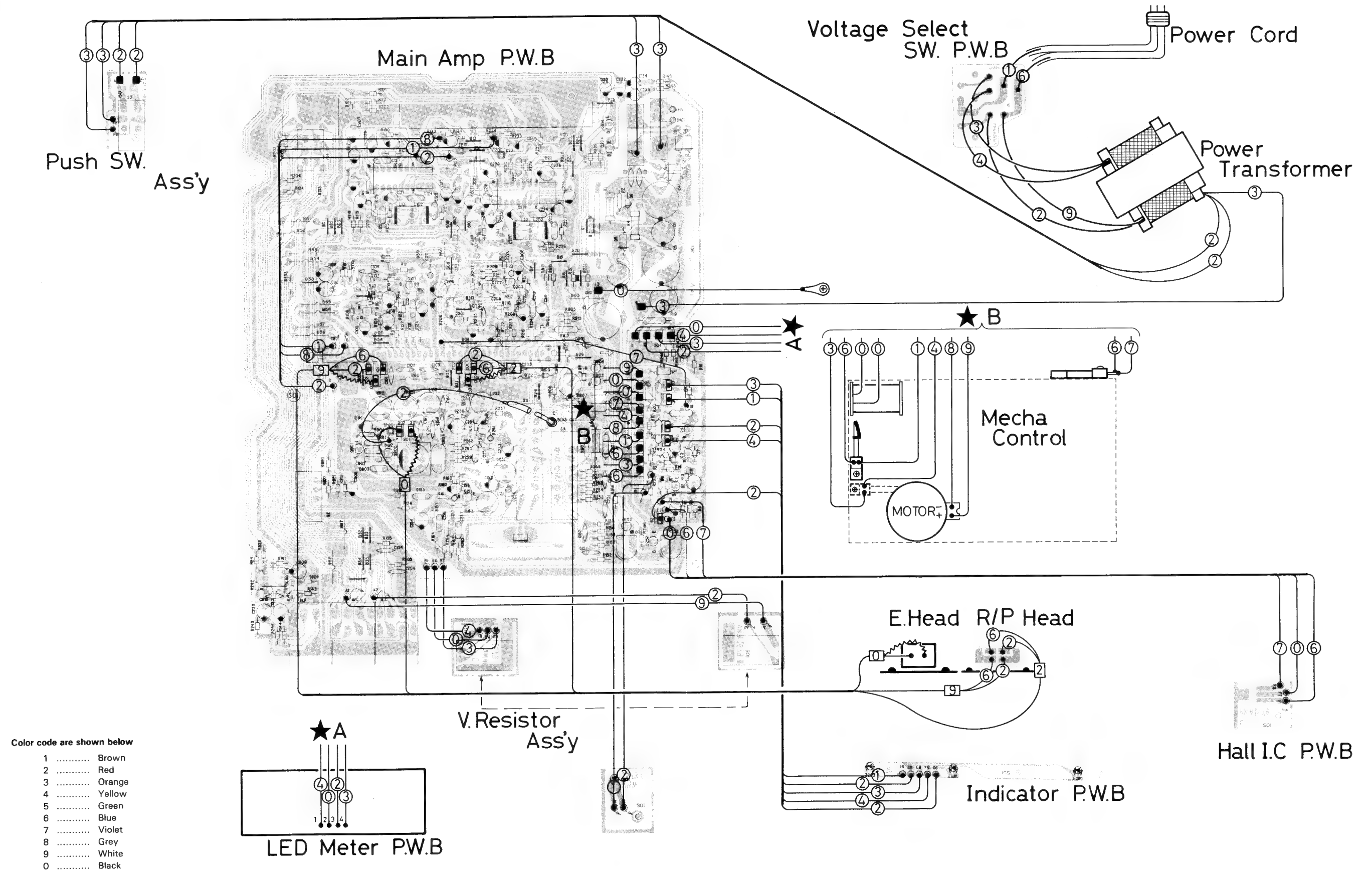
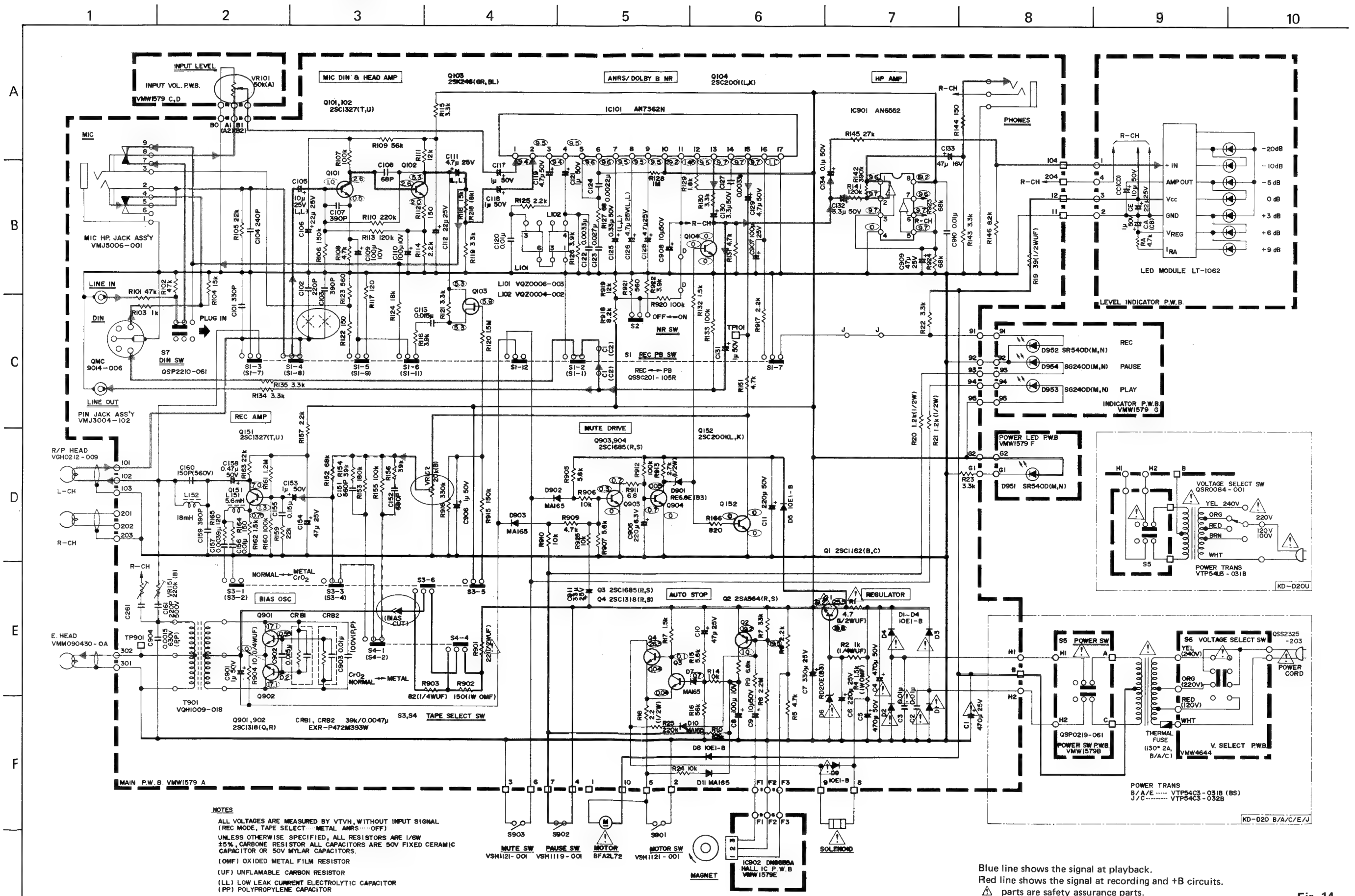


Fig. 13

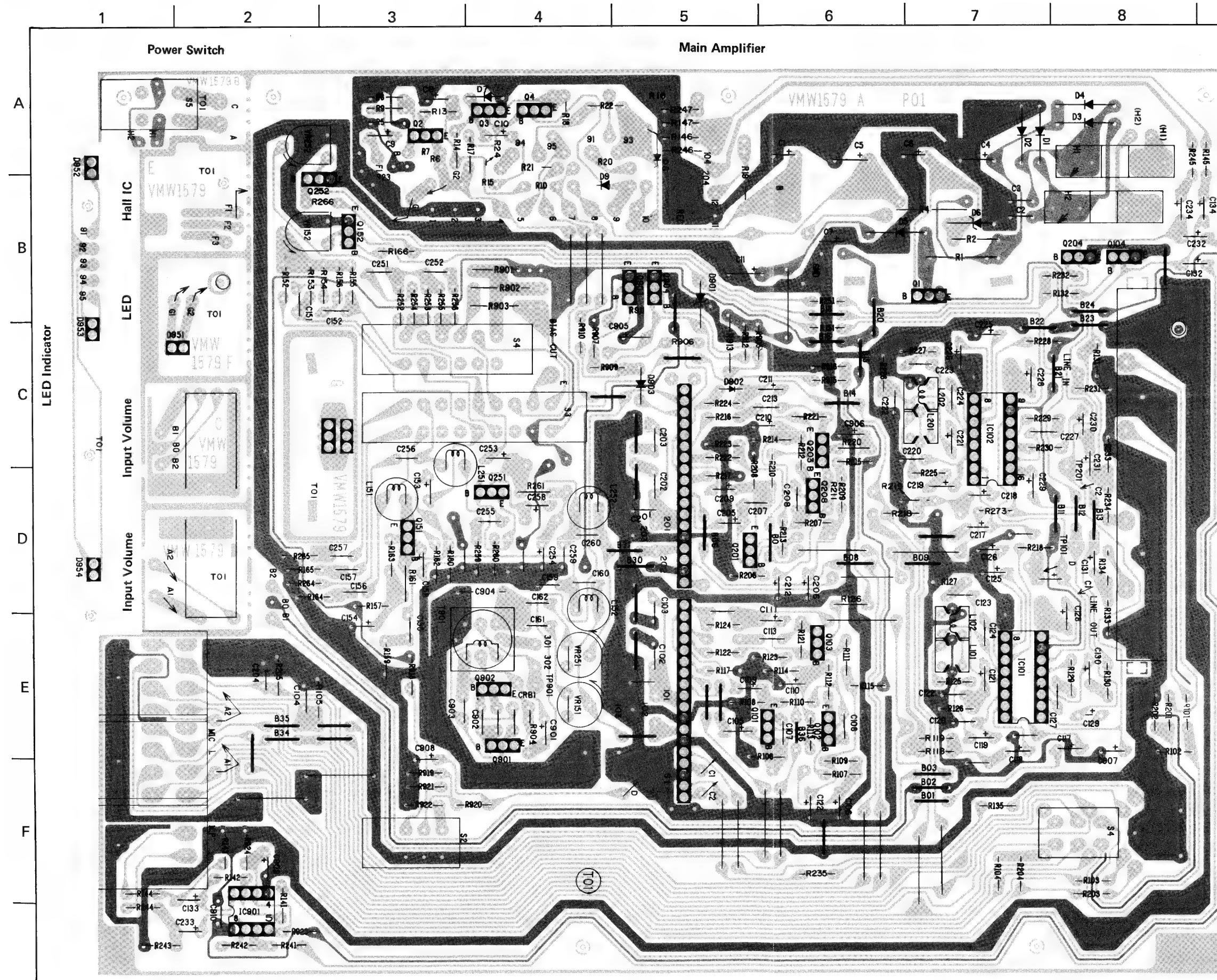
Standard Schematic Diagram of KD-D20



Blue line shows the signal at playback.
Red line shows the signal at recording and +B circuits.
⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Fig. 14

P.W. Board Parts



	E. Voltmeter			C. Tester (20kΩ/V)		
	E	C	B	E	C	B
Q101, 201	0.5	2.6	1.0	0.5	2.3	0.6
Q102, 202	2.0	5.3	2.6	2.0	5.0	2.3
FET	D	S	G	D	S	G
Q103, 203	5.3	5.9	5.3	5.1	1.4	5.1
Q104, 204	0	0	0	0	0	0
Q151, 251	0	0	0	0	0	0
Q152, 252	0.75	7.0	1.3	0.75	6.3	0.5
Q901	1.0	17.1	0.55	1.0	17.1	0.55
Q902	1.0	17.1	0.2	1.0	17.1	0.2
Q903	0	0.7	0.3	0	0.7	0.3
Q904	0	0.05	0.7	0	0.06	0.7
Q1	19.2	25.5	19.8	19.2	25.5	19.8
Q2	19.2	10.0	19.5	19.3	10.0	19.5
Q3	0.04	0.1	0.7	0.04	0.1	0.7
Q4	0.04	26.3	0.1	0.04	26.3	0.1

		1	2	3	4	5	6
		7	8	9	10	11	12
IC101, 201	E. Voltmeter	9.4	9.5	9.4	9.5	9.6	9.6
	C. Tester	6.7	6.7	9.4	6.7	9.6	9.6
IC901	E. Voltmeter	9.6	9.7	9.7	0	9.7	9.7
	C. Tester	9.6	9.7	9.4	0	9.4	9.7
IC101, 201	E. Voltmeter	9.5	9.5	9.5	19.2	1.45	9.5
	C. Tester	9.0	9.5	9.1	19.2	1.45	9.5
IC901	E. Voltmeter	9.6	19.2				
	C. Tester	9.6	19.2				
IC101, 201	E. Voltmeter	13	14	15	16		
	C. Tester	9.7	9.7	9.7	1.1		

Voltage values are measured by the following meter without input signal at NR SW = OFF, recording mode.
 E. Voltmeter = Electronic Voltmeter
 C. Tester = Circuit Tester (20kΩ/V impedance)
 (less than 10V - 10V range)
 10V or more - 50V range

Fig. 15

Main P.W. Board Parts List

△ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
R101,201,156 256,102,202 R103,203		VMW1579-***A QRD161J-473	P.W. Board C. Resistor	47 kΩ 1/6 W	6
R104,204		" -102	"	1 kΩ (KD-D20B/E)	2
R105,205,159 259,163,263 12		" -153	"	15 kΩ (KD-D20B/E)	2
R107,207,133 233,155,255 160,260,5, 912,920		" -223	"	22 kΩ	7
R108,208,131 231,151,251 909		" -104	"	100 kΩ	11
R109,209,16 R110,210,25 R111,211,919 R112,212,144 122,222,244 164,264		" -472	"	4.7 kΩ	7
R113,213,14 241		" -562	"	56 kΩ	3
R114,214,157 257,917,6		" -224	"	220 kΩ	3
R115,215,121 221,130,230 134,234,143 243,22		" -123	"	12 kΩ	3
R116,216,126 226,922		" -151	"	150 Ω	8
R117,217,165 265 R118		" -124	"	120 kΩ	4
R120,220 R125,225 R127,227 R128,228		" -222	"	2.2 kΩ	6
R129,229 R132,232,7 162,262 R135,235		" -332	"	3.3 kΩ	11
R142,242 R145,245		" -392	"	3.9 kΩ	5
R152,252,10 923,924 R153,253 R161,261 R166,266 R901		" -121	"	120 Ω	4
R902 R903 R904 R15,905,907 R13,14,906,910 24,925		" -153	"	150 kΩ	1
R911 R913 R915,106,206		QRD143J-155S QRD161J-222	"	1.5 MΩ 1/4 W	2
		" -680	"	2.2 kΩ 1/6 W	2
		" -105	"	68 Ω	2
		" -182	"	1 MΩ	2
		" -152	"	1.8 kΩ	2
		" -332	"	1.5 kΩ	5
		" -394	"	3.3 kΩ (KD-D20B/E)	2
		" -273	"	390 kΩ	2
		" -683	"	27 kΩ	2
		" -184	"	68 kΩ	5
		QRD143J-125S	"	180 kΩ	2
		QRD161J-821	"	1.2 MΩ 1/4 W	2
	△	QRD129J-220	Fail Safety Resistor	820 Ω 1/6 W	2
		QRG019J-151	OMF Resistor	22 Ω 1/2 W	1
		QRD149J-820S	Fail Safety Resistor	150 Ω 1 W	1
		" -100S	"	82 Ω 1/4 W	1
		QRD161J-562	C. Resistor	10 Ω	1
		" -103	"	5.6 kΩ 1/6 W	1
		" -6R8	"	10 kΩ	6
		QRD121J-272	"	6.8 Ω	1
		QRD161J-154	"	2.7 kΩ 1/2 w	1
			"	150 kΩ 1/6 W	3

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
R918,146,246 R921,123,223 R1 R2 R20		QRD161J-822 " -561 QRD129J-4R7 QRD149J-102S QRD121J-122	C. Resistor " Fail Safety Resistor " C. Resistor	8.2 kΩ 1/6 W 560 Ω 4.7 Ω 1/2 W 1 kΩ 1/4 W 1.2 kΩ 1/2 W	3 3 1 1 1
R7,119,219 R8 R9 R18 R19		QRD161J-333 QRD143J-225S QRD161J-682 QRD121J-2R2 QRD129J-390	" " Fail Safety Resistor	33 kΩ 1/6 W 2.2 MΩ 1/4 W 6.8 kΩ 1/6 W 2.2 Ω 1/2 W 39 Ω 1/2 W	3 1 1 1 1
R124,224,218 R154,254 R4 R916 R21		QRD161J-183 " -393 QRG019J-152 QRD161J-334 QRD121J-122	C. Resistor " " " " "	18 kΩ 1/6 W 39 kΩ 1.5 kΩ 1 W 330 kΩ 1/6 W 1.2 kΩ 1/2 W	3 2 1 1 1
C101,201 C102,202 C103,203 C104,204 C105,205,9,908		QCS11HJ-331 " -221 " -391 " -241 QEB41EM-106	C. Capacitor " " " " " E. Capacitor (Low Leak)	330 pF 50 V 220 pF 390 pF 240 pF 10 μF 25 V	2 2 2 2 4
C106,206,133 233,154,254 909,10 C107,207,159 259		QET41ER-476 " " " " " QCS11HJ-391	" " " " " C. Capacitor	47 μF 390 pF 50 V	8 4
C108,208 C109,209,907,8 C111,211,119 219,126,226 129,229		QCS11HJ-680 QET41AR-107 QEB41EM-475	" " " " " E. Capacitor E. Capacitor (Low Leak)	68 pF 100 μF 10 V 4.5 μF 25 V	2 4 8
C112,212 C113,213,902 C117,217,118 218,120,220 131,231,153 253,901,906 C120,220,156 256,3 C157,257		QET41ER-226 QFM11HJ-153 QET41HR-105 " " " " " QFM11HJ-103	E. Capacitor M. Capacitor E. Capacitor " " " " " M. Capacitor	22 μF 25 V 0.015 μF 50 V 1 μF 0.01 μF 0.0039 μF	1 3 12 5 2
C123,223 C124,224 C130,230,132 232 C127,227,122 222 C128,128		QFM11HJ-273 QFM11HJ-222 QEB41EM-335 " " " " " QFM11HJ-332	" " " " " E. Capacitor M. Capacitor E. Capacitor	0.027 μF 0.0022 μF 3.3 μF 25 V 0.0033 μF 50 V 47 μF 16 V	2 2 4 4 2
C134,234 C151,251 C152,252 C155,255 C160,260		QET41HR-104N QCS11HJ-561 QCS11HJ-681 QFM41HJ-154 QCS12HJ-151	" " " " " C. Capacitor " " " " " M. Capacitor C. Capacitor	0.1 μF 50 V 560 pF 680 pF 0.15 μF 150 pF 500 V	2 2 2 2 2
C161,261 C903 C904 C905 C1,5		QCY12HK-221 QFP82AJ-103 QFP82XJ-152 QET41AR-227 QET41HR-477N	" " " " " P.P. Capacitor " " " " " E. Capacitor	220 pF 0.01 μF 100 V 0.0015 μF 220 μF 10 V 470 μF 50 V	2 1 1 1 1
C2,3 C4 C6 C7		QCF11HP-103 QET41HR-477N QET41ER-277N QET41ER-337N	C. Capacitor E. Capacitor " " " "	0.01 μF 50 V 470 μF 50 V 270 μF 25 V 330 μF	2 1 1 1

Other P.W. Board Parts

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
C11		QET41HR-227N	E. Capacitor	220 μ F 50 V	1
C911		QET41ER-336N	"	33 μ F 25 V	1
VR101,201		QVP8A0B-024	V. Resistor	20 k Ω	2
VR151,251		QVP4A0B-224	"	220 k Ω	2
L101,201		VQZ0006-003	Filter Ass'y		2
L102,202		VQZ0004-002	"		2
L151,251		VQP0001-562	Inductor		2
L152,252		" -183	"		2
T901		VQH1009-018	OSC Coil		1
CRB1,CRB2		EXR-P472M393W	C.R. Block		2
IC101		AN7362N	IC		2
IC901		UPC4557C	"		1
Q101,201,102		2SC1327 (T.U)	Si. Transistor		6
202,151,251					
Q103,203		2SK246 (GR.BL)	FET		2
Q903,904,3		2SC1685 (R.S) PH	Si. Transistor	or 2SC1685 (R.S)	3
Q152,252,104		2SC2001 (L.K)	Si. Transistor		4
204					
Q901,902		2SC1318 (Q.R)	"		2
Q1		2SC1162 (B.C)	"		1
Q2		2SA564(R.S)	"		1
Q4		2SC1318 (R.S)	"		1
D1 ~ 5,8,9	△	10E1-B	Si. Diode		7
D6	△	RD20E (B3)	Zener Diode		1
D7,902,903		MA165-TA5	Si. Diode		5
10,11					
D901		RD 6.8E (B3)	"		1
S1		QSSC201-105R	Slide Switch		1
S2		QST4102-V01	Push Switch		1
S3,4		QST4242-V01	"		1
S7		QSP2210-061	"	KD-D20B/E	1
		VMJ3004-102	PIN Jack Ass'y		1
		VMJ5006-001	MIC/HP Jack		1
		QMC9014-006	DIN Jack	KD-D20B/E	1
		VKL5002-001	Heat sink		1
		DPSP3008Z	Screw		1
C125,225		QEB41HM-334	E. Capacitor (LL)		2
C158,258		QET61HR-474	E. Capacitor		2

Head



Slide Switch (Voltage select SW)

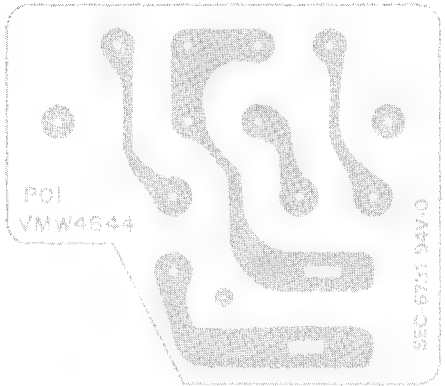


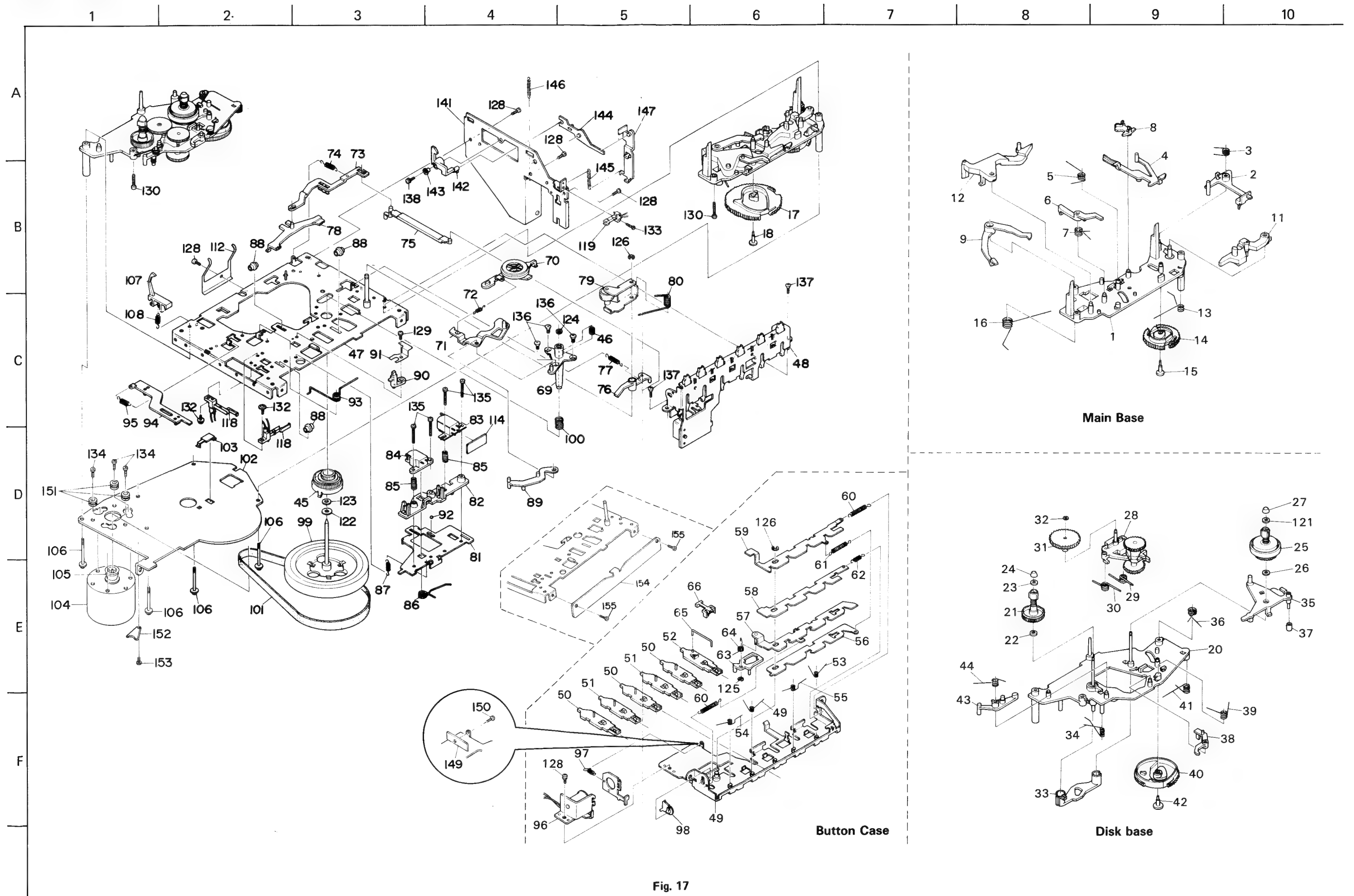
Fig. 16

Other P.W. Board Parts List

△ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
(Power Switch)		VMW1579-***B	P.W. Board		1
	△	QSP0219-061	Push Switch		1
(Input Volume)		VMW1579-***C	P.W. Board		1
		VMW1579-***D	"		1
		QVZ6201-001	V. Resistor		1
(Hall IC)		VMW1579-***E	P.W. Board		1
		DN6835A	Hall IC		1
(Power Indicator)		VMW1579-***F	P.W. Board		1
D951		SR540D (M.N)	L.E.D.		1
(Indicator)		VMW1579-***G	P.W. Board		1
D952		SR540D (M.N)	L.E.D.		1
D953,954		SG240D (M.N)	L.E.D.		2
(LED Module)		LT-1062	LED Module		1
RA, RB		QRD143J-472	C. Resistor		2
CA, CB		QET41HR-105N	E. Capacitor		2
CE		QET41ER-226N	"		2
CC, CD		QET41ER-227N	"	220 μ F 25 V	2
(Mecha.)		VMW3163-001	P.W. Board		1
(Voltage select SW)		VMW4644-002	P.W. Board		1
		QSS2325-203	Slide Switch	KD-D20A/B/C/E/J	1

Mechanical Component Parts



Enclosure Assembly and Electrical Parts (Except P.W. Board Parts)

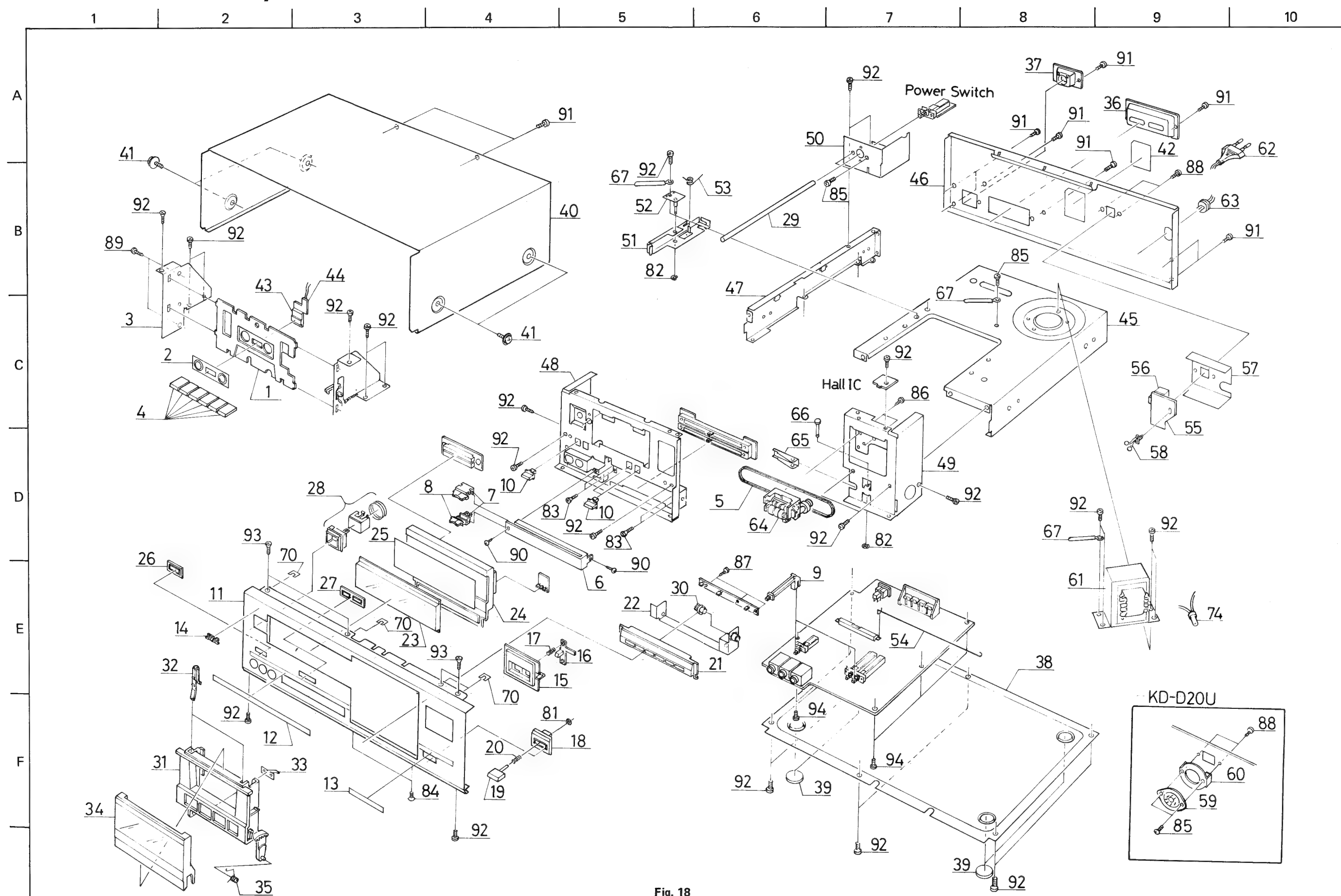


Fig. 18

△ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Mechanical Component Parts List

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
1		VKS2115-001	Main Base		1
2		VKS4400-001	Pause Trigger		1
3		VKW3006-026	Spring	Pause Trigger	1
4		VKS4401-001	FF Lever		1
5		VKW3006-027	Spring	FF Lever	1
6		VKS4402-001	Play Trigger		1
7		VKW3006-028	Spring	Play Trigger	1
8		VKS4403-002	FR Safety		1
9		VKS4404-001	Rew Lever		1
10		VKW3006-029	Spring	Rew Lever	1
11		VKS4405-00A	Pause Arm Ass'y		1
12		VKS4483-00A	Play Arm Ass'y		1
13		VKW4333-001	Spring	Pause Cam	1
14		VKS3147-001	Pause Cam		1
15		VKS4410-002	Lock Bush	Pause Cam	1
16		VKW4334-001	Spring	Play Cam	1
17		VKS4411-002	Play Cam		1
18		VKS4410-002	Lock Bush	Play Cam	1
20		VKS2117-00A	Disk Base Ass'y		1
21		VKR4265-00A	Supply Reel Ass'y		1
22		VKZ4003-003	Felt	Back Tension	1
23		VKR4170-001	Ring		1
24		VKS4131-001	Reel Stopper		1
25		VKR4267-00A	Take-up Reel Ass'y		1
26		VKR4170-001	Ring		1
27		VKS4131-001	Reel Stopper		1
28		VKS3148-00A	FR Base Ass'y		1
29		VKW3006-031	Spring	FF	1
30		VKW3006-032	Spring	Rew	1
31		VKR4271-001	Rew. Gear		1
32		VKZ4004-001	Special Washer	Rew Gear	1
33		VKS4413-001	FR Stopper		1
34		VKW3006-033	Spring	FR Base	1
35		VKS4414-00A	FR Arm Ass'y		1
36		VKW3006-034	Spring	FR Arm	1
37		VKH3005-045	Collar	"	1
38		VKS4416-002	FR Trigger		1
39		VKW3006-035	Spring	FR Trigger	1
40		VKS4417-001	FR Cam		1
41		VKW3006-036	Spring	FR Cam	1
42		VKS4410-002	Lock Bush	"	1
43		VKS4418-001	Return Lever		1
44		VKW3006-045	Spring	Return Spring	1
45		VKR4272-00A	FW. Gear Ass'y		1
46		VKR4276-001	Roller		1
47		VKL3352-00A	Chassis Base Ass'y		1
49		VKL3354-00A	Button Case Ass'y		1
50		VKS4420-00A	Button Ass'y		3
51		VKS4420-00B	"		2
52		VKS4493-001	Pause Button Ass'y		1
53		VKW4345-002	Spring		1
54		" -001	"		1
55		VKW4326-001	"		2
56		VKL3355-002	Rec Cam		1
57		VKL5125-00B	Main Cam Ass'y		1
58		VKL3357-002	Sub Cam		1
59		VKL3358-001	Switch Cam		1
60		VKW3002-094	Tension Spring	Switch Cam Main Cam	2
61		" -100	"	Switch Cam ~ Rec. Cam	1

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
62		VKW3002-095	Tension Spring	Sub Cam	1
63		VKS4422-001	Select Arm		1
64		VKW4340-001	Spring	Select Arm	1
65		VKW4327-002	Wire		1
66		VKS4423-001	Wire Stopper		1
69		VKF4115-00A	Capstan Metal Ass'y		1
70		VKS4424-00A	Take-up Idler Ass'y		1
71		VKS4427-001	Pause Arm		1
72		VKW3002-096	Tension Spring	Take-up	1
73		VKS4428-002	Brake Arm (1)		1
74		VKW3002-097	Tension Spring	Brake Arm (1)	1
75		VKS4429-001	Brake Lever		1
76		VKS4430-002	Brake Arm (2)		1
77		VKW3002-097	Tension Spring	Brake Arm (2)	1
78		VKS4431-002	Brake		1
79		VKP4121-00A	Pinch Roller Arm Ass'y		1
80		VKW4356-002	Pinch Roller Spring		1
81		VKL3359-003	Slide Base		1
82		VKS2119-001	Head Mount Base		1
83		VGH0421-009	R/P Head Ass'y		1
84		ZMM090430-0A	E Head Ass'y	R/P, E. Head	1
85		VKW3001-020	Compression Spring		2
86		VKW4342-002	Slide Base Spring		1
87		VKW3002-099	Tension Spring		1
88		VKS4432-002	Roller		3
89		VKS4433-002	Switch Arm		1
90		VKS4434-001	Cassette Guide		1
91		VKY4238-001	Spring Plate		1
92		T41615-004	Stell Ball		1
93		VKW4341-001	Spring	Slide Base	1
94		VKS4435-003	Rec Lever		1
95		VKW3002-011	Tension Spring		1
96	△	VGP0601-013	Solenoid Ass'y		1
97		VKW3002-043	Tension Spring		1
98		VKS4436-001	Rec Arm		1
99		VKF3120-00A	Flywheel Ass'y		1
100		VKW3001-010	Spring	Thrust	1
101		VKB3001-011	Belt	Capstan	1
102		VKL3402-001	F.M. Bracket		1
103		VKS4437-001	Thrust Plate		1
104	△	BFA2L72	D.C. Motor		1
105		VKS4139-002	Motor Pulley		1
106		VKZ4014-001	Special Screw		4
107		VKS4438-002	Rec. Safety Arm		1
108		VKW3002-039	Tension Spring	Rec S. Arm	1
111		VKS4492-00A	Rec. Arm Ass'y		1
112		VKY4239-001	Pack Spring		1
113		VKS4490-001	Select Arm		1
114		VMW3163-001	Printed Wiring Board		1
115		VKW3006-049	Spring		1
116		VKW4374-002	"		1
118		VSH1121-001	Leaf Switch		2
119		VSH1119-001	"		1
121		Q03093-838	Washer		1
122		" -627	"	Thrust	1
123		" -827	"		1
124		" -522	"		1
125		REE1500	E. Ring	Oil Cut Select Arm x 1 Rec. Arm Unit x 1	2
126		REE2500	"	Switch Cam x 1 Pinch Roller Ass'y x 1	2

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
128		HPST2604Z	Screw	Solenoid Ass'y x 1 Pack Spring x 1, Side BKT Ass'y x 3	5
129		HPST2606Z	"	Stell Ball	1
130		HPST2612Z	"	Main Base x 1 Disk Base x 1	2
132		SBSB2006Z	"	Leaf Switch	2
133		SDSP2006Z	"	"	1
134		VKZ4109-001	Motor Screw	D.C. Motor	3
135		SPSX2010N	Screw	R/P Head x 2 E. Head x 2	4
136		SSST2604Z	"	Capstan Metal Ass'y	3
137		SSST2605Z	"	Button Case x 2	2
138		SPSP2612Z	"	Side Bracket Ass'y	1
141		VKL3399-001	Side Bracket		1
142		VKS4488-001	Lock Arm		1
143		VKH3001-054	Flange Collar		1
144		VKS4487-001	Connecting Lever		1
145		VKW3002-063	Tension Spring	E. Button	1
146		" -034	"	E. Lever	1
147		VKS4480-001	Eject Button		1
148		VKH3000-053	Collar		1
149		VKL5256-002	Bracket		1
150		SPSK1425M	Screw		1
151		VKZ4130-001	Cushion Rubber		3
152		TFB345469-01	Rubber Stopper		1
153		HPST2604Z	Screw		1
154		VKL5295-001	Stopper		1
155		SSSP3005Z	Screw		2

Enclosure Assembly and Electrical Parts List
(Except P.W. Board Parts)

△ parts are safety assurance parts.

When replacing those parts, make sure to use the specified one.

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
11 ~ 15 (18, 21) 23 ~ 28		ZCKDD20Y-CBF	Front Plate Ass'y		1 set
1		VJD3340-001	Mecha. Cover		1
2		VJD4596-001	Disk Plate		1
3		VKL5257-001	Mecha. Bracket (L)		1
4		VXP4240-001	Push Button	Mecha.	6
5		VKB3000-053	Belt		1
6		VJD3339-001	Blind		1
7		VKS3159-001	Volume Lever		2
8		VXS4072-001	Slide Knob		2
9		VKS3160-002	Remote Bar		3
10		VXP4234-001	Push Button		3
11		VJC1236-001	Front Plate		1
12		VJD4593-001	Scale Plate		1
13		VJD4594-001	Plate		1
14		E69212-001	JVC Mark		1
15		VJD3342-001	Counter Escutcheon		1
16		VXP4241-001	Reset Knob		1
17		VKW3001-058	Compression Spring		1
18		VJD4590-001	Eject Escutcheon		1
19		VXP4239-001	Push Button	Eject	1
20		VKW3001-063	Compression Spring		1
21		VJD3341-001	Button Case		1
22		VKL5262-00A	Door BKT. Ass'y		1
23		VJK3195-001	Finder		1
24		VJD2189-001	LED Escutcheon		1
25		VJD4595-001	LED Plate		1
26		VJD4591-001	Button Escutcheon	NR	1
27		VJD4592-001	"	Tape	1
28		E69189-002	Push Knob Ass'y		1
29		VKS4003-011	Pipe		1
30		VYH4460-001	Gear		1
31		VJT2073-001	Cassette Door		1
32		VKS4481-001	Cassette Spring		2
33		VKY4252-002	"		1
34		VJT3089-001	Cassette Lid		1
35		VKW4365-001	Holder Spring		1
36		VJD3311-001	Jack Escutcheon	KD-D20B/E	1
37		VJD3360-001	DIN Jack Escutcheon	KD-D20B/E	1
38		VJC2075-001	Bottom Cover		1
39		VJF4003-002	Foot		4
40		VJC2076-001	Top Cover		1
41		VKZ3001-002	Special Screw		4
42		VYN2099-002PA	Name Plate	KD-D20A	1
		" -001PA	"	KD-D20B	1
		" -003PA	"	KD-D20C, -003PK	1
		" -004PA	"	KD-D20E	
		" -005PA	"	KD-D20J	1
		" -006PA	"	KD-D20U	1
45		VKL1217-001	Amp. Chassis		1
46		VJC2074-001	Rear Panel	KD-D20B/E	1
		" -004	"	KD-D20A/C/J/U	1
47		VKL3383-001	Angle		1
48		VKL2160-001	Front Bracket (L)		1
49		VKL3384-001	" (R)		1
50		VKL3387-001	Power Bracket		1
51		VKL3395-001	Rec. Arm		1
52		VKL5260-00B	Rec. Bracket Ass'y		1
53		VKW4363-002	Spring		1
54		VKW4364-001	Rec. Wire		1
55	△	VMW4644-001	P.W. Board	Voltage Select KD-D20A/B/C/E/J	1

Ref. No.	△	Parts No.	Parts Name	Remarks	Q'ty
56	△	QSS2325-203BS	Slide Switch	KD-D20B	1
	△	" -203	"	KD-D20A/C/E/J	1
57	△	VMA4151-001	Insulator	KD-D20A/B/C/E/J	1
58		VKS4354-001	Wire Clamp	"	1
59	△	QSR0084-001	V. Select Switch	KD-D20U	1
60		VKL4275-001	Bracket	"	1
61	△	VTP54C3-031BBS	Power Transformer	KD-D20B	1
		" -031B	"	KD-D20A/E	1
		" -032B	"	KD-D20C/J	1
		VTP54U3-031B	"	KD-D20U	1
62	△	QMP9017-008BS	Power Cord	KD-D20B	1
	△	QMP2560-200	"	KD-D20A	1
	△	QMP1200-200	"	KD-D20C/J	1
	△	QMP3900-200	"	KD-D20E	1
	△	QMP7600-200	"	KD-D20U	1
63	△	QHS3876-162BS	Strain Relief	KD-D20B	1
	△	" -162	"	KD-D20A/C/E/J/U	1
64		VKC5160-001T	Tape Counter		1
65		VKL5258-001	Eject Lever		1
66		VKH4387-001	Shaft		1
67		VKZ4001-011	Wire Holder		2
70		T47818-002	Spacer		4
74		TAW000504-01	Counter	KD-D20U	2
81		REE2500	E Ring	Eject Escutcheon	1
82		REE3000	"	Rec. Bracket x 1	2
				Eject Lever x 1	
83		LPSP2604Z	Screw	INPUT Vol. P.W.B.	4
84		LPSP2606Z	"	Door Bracket Ass'y	2
85		LPSP3006Z	"	Power Switch P.W.B. x 2	4
				Wire Holder x 2	
86		SDSF2606Z	"	Tape Counter	2
87		SDSF2608Z	"	P.W.B.	3
88		SDSP3006R	"	V. Select Switch	2
89		SDST2604Z	"	Mecha. Bracket	2
90		SDST3006Z	"	Blind	2
91		SDST3006R	"	Jack Escutcheon x 1	10
				DIN Jack Escutcheon x 1	
				Rear Panel x 3	
				Angle x 2	
				Power Bracket x 1	
				Top Cover x 2	
92		SDST3006Z	"	Mecha. x 4	28
				Hall IC x 1	
				F. Plate x 2	
				Bottom Cover x 6	
				F. Bracket (L) x 3	
				F. Bracket (R) x 3	
				Power Bracket x 1	
				Rec. Bracket x 1	
				Power Transformer x 4	
				P.W.B. x 3	
93		SSST3006Z	"	Front Plate x 3, Mecha x 2	5
94		SDST3006V	Screw	Main P.W.B.	5

Packing

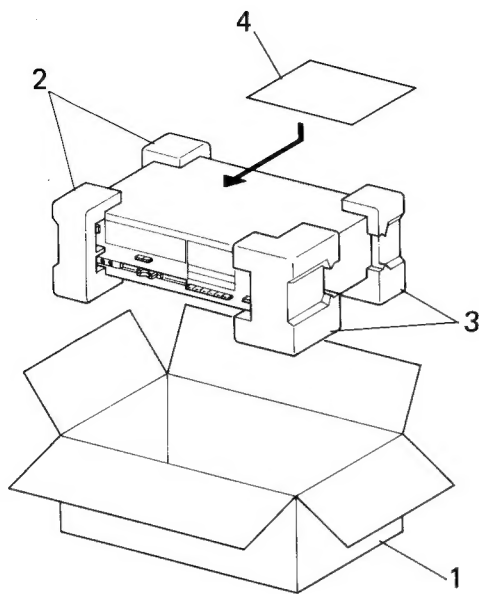


Fig. 19

Positions of controls and switch knobs at renew packing

Power switch	: OFF
Tape select SWs	: SF/NORM
Rec level controls	: MIN
Counter	: 000
Mecha. operation buttons	: OFF
Eject	: OFF

Packing Material Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	VPD2099-J01	Carton	KD-D20B	1
	" -J02	"	KD-D20A	1
	" -J03	"	KD-D20C	1
	" -J04	"	KD-D20E	1
	" -J05	"	KD-D20J	1
	" -J06	"	KD-D20U	1
2	VPH3111-001	Cushion (L)		1
3	VPH3112-001	" (R)		1
	Q04141H	Wire Clamp	for Power Cord	1
	TKS000501-08	Sheet	for Unit	1
	VPE4002-005	Poly Bag	for Unit KD-D20B	1
	QPGA060-06005	Envelope	for Unit	1
4	AP4056A-36	Poly Bag	KD-D20A/C/E/J/U	1
	VPE4002-004	"	for PIN Cord	1
	AP4056B-077	Envelope	for Inst. Book KD-D20B	1
			for Inst. Book	1
			KD-D20A/C/E/J/U	

Accessories

⚠ parts are safety assurance parts.

When replacing those parts, make sure to use the specified one.

Parts No.	⚠	Parts Name	Remarks	Q'ty
VMP0002-00B		Pin Cord		2
VNN0094-901		Instruction Book	KD-D20A/C/J/U	1
" -301		"	KD-D20B/E	1
BT20013C		Guarantee Certificate	KD-D20B	1
BT20029B		Warranty Card	KD-D20A	1
BT20025E		"	KD-D20C	1
BVT20047		"	KD-D20U/J	1
TJL000443-01		Seal	KD-D20B	1
		BEAB Label	KD-D20B	1
VNC5004-001		Mark Sticker	KD-D20B/E	1
TLT052401-01		Warning Label	KD-D20A/B/E	1
QZL1002-003BS		"	KD-D20B	1
T44362-001		CSA Marker	KD-D20C	1
E66416-003		Envelope	for Warranty Card	1
BT20046A		Special Relay Card	KD-D20J	1
BT20046		"	KD-D20J	1
BT20044B		Safety Instruction	KD-D20J	1
TLT000505-01		UL/CSA Caution Label	"	2
E7795-1		EP Mark	KD-D20U	1
VNC5311-101		Caution Card	KD-D20U	1
V04062-001	⚠	Siemens Plug	"	1
T46328-001		Caution Label	"	1
VND4037-001		F. Mark Label	KD-D20E	1



Supplementary **SERVICE MANUAL**

MODEL **KD-A22A/B/C/E/J/U**
KD-A11A/B/C/E/J/U
STEREO CASSETTE DECK

This manual is supplementary of KD-A22A/B/C/E/J/U (No. 4191) and KD-A11A/B/C/E/J/U (No. 4192).

Change of parts.

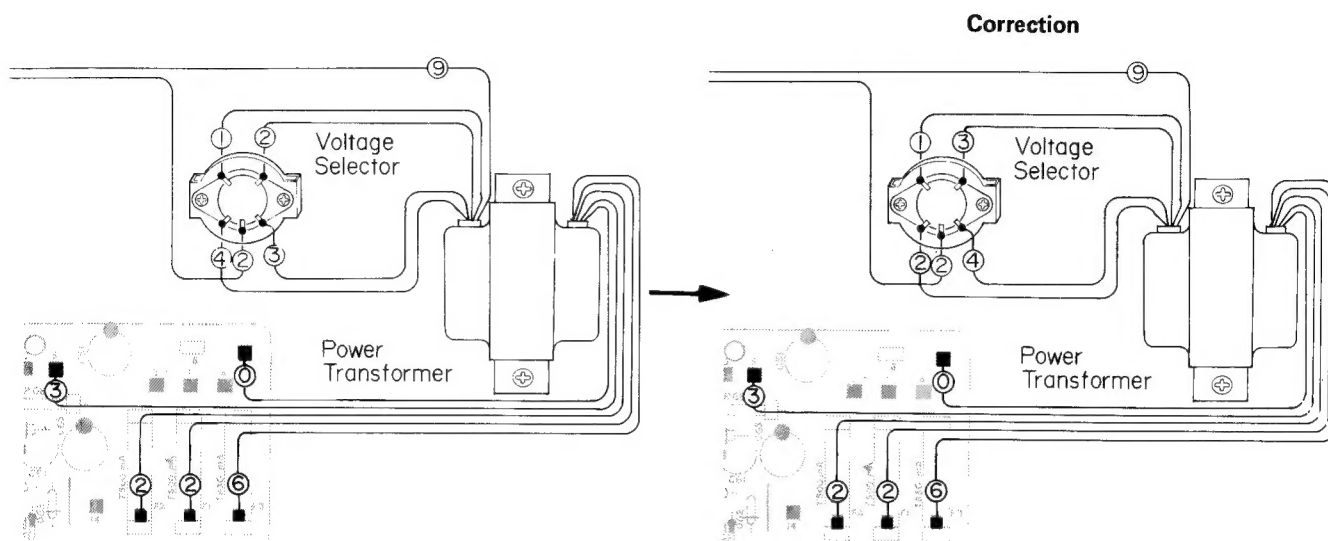
KD-A22A/B/C/E/J/U service manual (No. 4191)

Please take care of the following matters.

- (1) Note of these new parts in your service manual.
- (2) Give an order to us for the parts concerned to keep them as spare.

Page	Ref. No.	Old Parts No.	New Parts No.	Parts Name	
19	64	VTP54T5-031BBS	VTP54C5-031BBS	Power Transformer	(KD-A22B)
		VTP54T5-031B	VTP54C5-031B	"	(KD-A22E)
		VTP54T5-032B	VTP54C5-032B	"	(KD-A22J/C)

Please note this correction of mis-print is important for safety assurance, so that below genuine wiring connection show to be connected when repairing.



KD-A22U Wiring Connection — (page 11, No. 4191)
 KD-A11U Wiring Connection — (page 15, No. 4192)

JVC

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